

Section of the History of Medicine

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Papers

Charles Valadier: A Forgotten Pioneer in the Treatment of Jaw Injuries

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Ever since man started to wage war, the treatment of facial injuries has been a problem. From the days of single combat to the sophistication of World War II, the face has always been one of the most vulnerable parts of the body. The rash of road accidents had not yet begun by the outbreak of the 1914-18 war. In days of peace, jaw injuries were not common, and even in the reality of war, few medical men could have visualized how frequently facial wounds would occur. There was one man who seems to have realized this fact and was determined to help treat such cases.

Charles Auguste Valadier was born on 26 November 1873 in Paris. For many details of his early life we are indebted to Dr Robert Ivy (1971). His father, Charles Jean-Baptiste Valadier, was a pharmacist. As a boy he was taken by his parents to live in America; presumably they retained their French citizenship but Charles apparently became a naturalized American. He entered the Philadelphia Dental College as a student about 1898, and qualified DDS in 1901. He then took the State examinations to practice in both Pennsylvania and New York. He was in practice in New York on 5th Avenue for some years, where in 1909 he had as an assistant a young Frenchman, Robert Vielleville, who had come to obtain an American degree.

Valadier's mother was now apparently a wealthy widow living in Paris. In 1910, on the death of her other son who had practised medicine in Paris, she persuaded Charles to return to

France. She rented an apartment for him at 22 Place Vendôme. Valadier had no French qualifications and, as a French correspondent put it, it was Robert Vielleville who protected him with his diploma, and worked with him. Meanwhile Valadier studied at the Ecole Odonto-Technique de Paris from November 1910 to June 1911, and received the certificate of Chirugien Dentiste from the Faculty of Medicine of Paris University in July 1912. He was then entitled to practise on his own account.

In July 1913 Valadier married Alice Wright, granddaughter of Robert Clinton Wright, one time United States Minister in Brazil. Soon after this Valadier and Vielleville dissolved their partnership, and he moved to 47 Avenue Hoche where he established a practice which proved to be most successful.

After the commencement of hostilities in 1914 Valadier began to look for some way of helping the war effort. Possibly the French authorities were not anxious to accept him, as he was not a French national, so he offered his services to the British Red Cross Society in Paris and was sent by them to Abbeville. The History of the Great War (1922) states: 'Dental surgeons commenced to arrive in France early in November and were allotted to clearing hospitals and to the bases. An eminent dentist, M Valadier, a citizen of the United States, who had been sent from Paris to Abbeville by the BRCS, was also accepted for duty with the British troops on 29 October'. Thus Valadier seems to have been first dental surgeon to provide treatment officially for the British troops in France. The dental surgeons sent over by the War Office were given temporary commissions on the General List and attached to the RAMC: Valadier was given the rank of Lieutenant. His appointment however, was honorary, and he served on this basis throughout the war, although promoted to the rank of Major by 1916.

In 1914 Harold Delf Gillies was 32 years old and he too had offered his services to the BRCS. Gillies obtained the FRCS in 1910, and in pre-war years he had been assistant to Milsom Rees, consultant ENT surgeon at St Bartholomew's Hospital. Gillies was sent to France early in 1915 and eventually to Boulogne. By this time Valadier had organized a 50-bed unit attached to the 83rd (Dublin) General Hospital at Wimereux for the treatment of facial injuries. At first Valadier seems to have been given a fairly free hand. He had provided much of the equipment largely at his own expense, and a dental laboratory in which his own technicians from Paris made the various dental appliances used in the treatment of jaw fractures. It was decided that in the operating theatre Valadier should be assisted by a medical man, and in this capacity Gillies was sent to work with him. This was Gillies' introduction to a new kind of wound, and he soon realized that they needed a special type of surgical treatment.

How long Gillies remained with Valadier is not known, but the experience produced in him an intense interest and the desire to learn more about the methods of treatment. Gillies obtained permission to spend some months visiting men who were undertaking any form of facial surgery. The most advanced practitioner of this art was Hippolyte Morestin in Paris, and there Gillies saw a great deal of reconstructive and plastic surgery of the face. Convinced of the great need to develop such treatment, Gillies returned to England to impress its importance on the army medical authorities. The ultimate success of his efforts is now well known.

In his biography of Gillies, Pound (1964) states that Gillies may have owed more to Valadier's experience and skill than he was disposed to admit – understandably perhaps, in view of the disparity in their professional status. Gillies did, however, acknowledge Valadier's work, and also Kazanjian's, in his book *'Plastic Surgery of the Face'* (1920). Varaztad Kazanjian went to France with the first Harvard Surgical Unit in mid-1915 and continued to serve there until 1919. He became an Honorary Major RAMC, and also spent some time with Gillies at Queen Mary's Hospital, Sidcup. In *'The Principles and Art of Plastic Surgery'* (Gillies & Millard 1957), Gillies pays a less formal tribute to Valadier:

In Boulogne there was a great fat man with sandy hair and a florid face, who had equipped his Rolls Royce with dental chair, drills and the necessary heavy metals. The name of this man whose high brown riding boots carried a polish equal to the glitter of his spurs was Charles Valadier. He toured about until he had filled with gold all the remaining teeth in British GHQ. With the Generals strapped in his

chair, he convinced them of the need of a plastic and jaw unit, and one was set up nearby in the lovely little town of Wimereux. I was invited by Valadier to accompany him to assist in his initial incision.'

Much of this is written in a facetious tone but Gillies continues:

'The credit for establishing the first Plastic and Jaw Unit, which so facilitated the later progress of plastic surgery, must go to the remarkable linguistic talents of the smooth and genial Sir Charles Valadier.'

It appears that Valadier did in fact convert his limousine into a mobile dental unit, again at his own expense. His services would no doubt be in great demand, and given gratuitously. As he held an honorary commission he would receive allowances only and no official pay from the Army.

During the war Valadier published several papers, either alone or in collaboration with others, on the treatment of jaw injuries. The most comprehensive is *'A Report on Oral and Plastic Surgery and on Prosthetic Appliances'* (Valadier & Whale 1917), based on the treatment of over 1000 cases of facial injuries. His co-author, H Lawson Whale, was a rhinologist who became an enthusiastic plastic surgeon for the duration of the war; he translated Martinier & Lemerle's pre-war book on injuries of the face and jaw into English in 1917, and was a staunch supporter of Valadier and his methods of treatment.

The principles advocated by Valadier were surgically sound. He advised that the facial wound should be closed as soon as possible, because he realized that lacerated flaps retracted and made later approximation of the soft tissues difficult. He appreciated that the suturing of lacerations around the mouth might cause problems in the treatment of jaw fractures by cicatrization and trismus. He strongly advocated the retention of all teeth, even those in the line of fracture; the matter is still contested today but at that time it was considered definitely inadvisable.

A major problem of all wounds in the 1914–18 war was infection. In all fractures compound into the mouth Valadier made a submandibular stab wound and inserted a drainage tube. In this connexion he recognized the value of frequent irrigation of the wound and he devised a mobile apparatus (*see* Martinier & Merle 1971) consisting of a large drum containing boiled water with a stop-cock to which rubber tubing with a cannula was fitted. To provide pressure for satisfactory irrigation a bicycle pump was connected to the drum. It was popularly known in the wards as 'the fire engine'.

Infection was indirectly responsible for the other main complications in the treatment of

facial wounds – secondary hæmorrhage and pulmonary infections. In this series of cases secondary hæmorrhage was severe in only 11 cases, and although pneumonia was much more common, only 7 patients died from this cause.

In 1917 the *British Medical Journal* published a section devoted to facial injuries; it included a résumé of the paper by Valadier & Whale (1917), and an article by J F Colyer (1917) strongly advocating removal of teeth in the region of fractures, if necessary with adjacent necrotic bone, as the best way of eliminating sepsis. He considered the maintenance of the arch and occlusion of the remaining teeth of no great importance, as these would eventually come into a functional bite. A paper by Kazanjian (1917) favoured early immobilization of the bony fragments, trying to retain the contour of the arch and maintain the teeth in occlusion. He emphasized the real danger of secondary hæmorrhage, especially from the lingual arteries. These articles illustrate the divergent views held by surgeons at that time.

Mr Reginald Pound put me in touch with one of Valadier's patients, Private Thorpe, who as a young man of 19 was wounded on 5 June 1918 by a shell fragment which cut away most of his lower lip and a considerable fragment of the anterior part of his mandible. After first-aid treatment he was sent to the plastic and jaw unit at the 83rd General Hospital, of which Valadier was still nominally in charge. Thorpe describes Valadier as a tall, heavily built man, with handsome features but a florid complexion, and a military moustache; he had a good carriage, and was always well turned out, usually in knee boots, breeches and wearing a Sam Brown belt; despite his size his hands were gentle; he handled the wound firmly but, instead of causing pain, he soothed it.

By 1918 Valadier's activities were being severely curtailed by the authorities, and the unit had become more or less a clearing station for facial injuries. The arrangement appeared to allow Valadier some latitude, so that he could hold some cases which particularly interested him. In this way he retained a few patients before transferring them to Gillies at Queen Mary's Hospital, Sidcup. Another ENT surgeon, Frederick John Cleminson, Captain RAMC, now officially did the operating as planned by Valadier, and with his assistance. The other professional man on the staff of the unit was Captain Leonard King, a dental surgeon, who undertook most of the dental work. It seems that as soon as the armistice was declared Valadier was informed that no more operations were to be undertaken. Presumably the unit gradually ceased to function, and Valadier was left to salvage his own equipment.

While this is not the occasion to evaluate the techniques which Valadier and his contemporaries used in the oral treatment of jaw injuries, it is of interest to consider in some detail Private Thorpe's injury. The anterior part of the mandible had been lost, presumably from premolar to premolar, but fragments of bone and shreds of periosteum would probably be present in the wound. After primary closure of the lacerated soft tissues the two lateral fragments of the mandible would be pulled inwards; to control their movements to some extent they were temporarily anchored together by wire. Later a cap-splint was fitted on the teeth in each fragment with a connecting rod in the form of a jack-screw. The nut on the screw was turned at regular intervals to draw the two fragments closer, and this seemed to stimulate the development of callus between them. Valadier had used this manoeuvre on other patients but how often it was successful is not known; however, it worked in Private Thorpe's case. The growth of new bone was seen on radiographs, and then the movement of the jack-screw was reversed. The two fragments were slowly pushed apart until an adequate arch had been achieved. After a period of retention the splints were removed when the bridge of bone between the fragments was more consolidated. A final retention plate in the form of a partial lower denture was fitted. Colyer concedes that in such cases new bone formation could take place, but considers that fibrous union would more commonly result. The outline of Thorpe's treatment is based largely on information given by the patient and partly on Valadier's description of a very similar case.

At this distance in time it is difficult to assess Valadier's ability as a surgeon, but there seems little doubt about his ingenuity and clinical flare. He does not seem to have been popular with his contemporaries in the same field, although no one who came into direct contact with him has left any derogatory comment. He was obviously a forceful, flamboyant character and may have been something of an 'empire builder'. He foresaw the need of special centres to treat jaw injuries, and largely organized and administered the unit at Wimereux. Both Lawson Whale and Frederick Cleminson seem to have worked amicably with him, and were grateful for the experience they had with him in the field of plastic surgery.

Valadier's work may have been well thought of by Sir Arthur Sloggett, Director-General, Medical Services in France; after Sloggett was retired rather suddenly on reaching the age limit in May 1918, strictures were placed on Valadier's activities. Valadier's movements after the armistice are rather obscure and the British authorities

probably terminated his employment sometime in 1919, but he does not appear to have returned to Paris until early 1920. The War Office perhaps felt that their treatment of Valadier might appear shabby, and he was made a Knight Commander of the British Empire; he was presented with the insignia of the Order by the British Ambassador in Paris on 23 February 1920, but as he was not a British subject he could not receive the accolade.

Valadier was three times mentioned in despatches during the war; he was appointed a Companion of St Michael and St George in June 1916, and an Associate of St John of Jerusalem in January 1917. In 1919 he was made a Chevalier of the Legion of Honour by the French government. Valadier applied for British nationality, and the Home Office apparently accepted his period of service with the British Army as the major part of the qualifying period for naturalization. Probably to satisfy the Home Office he spent some three months in London, his address being c/o 35 Harley Street, where three dental surgeons, presumably his friends, were in practice. The certificate of naturalization was granted on 16 March 1920, but Valadier did not receive his knighthood from the king until 8 March 1921. The only other dental man knighted for services in World War I was Sir Frank Colyer.

During the 1920s, Valadier participated fully in all professional activities in Paris, and there are many reports of his discussions at dental meetings. He was president of the American Dental Club of Paris; unfortunately the archives of the Club were lost during World War II. He had the reputation of being a skilful practitioner of dentistry and designed many of his own instruments. He had a successful and fashionable practice in which he employed several assistants. He was well-known for his kindness, especially to young colleagues. He was generous and fond of entertaining, lived extravagantly and as well as his home in Paris, he had a villa at Le Touquet. Valadier's mother left him a considerable sum of money, but he gambled continuously for high stakes, and this appears to have been his downfall. During the last few years of this life he was in poor health, suffering from some blood disease, possible leukaemia. He had to retire from practice, continued to gamble, ran into debt and died penniless on 31 August 1931.

It is not possible now to assess Valadier's surgical abilities, but he quickly envisaged the principles on which both hard- and soft-tissue facial injuries should be treated. His limitations would be due to lack of orthodox surgical training. The appliances he designed for mandibular fractures indicate the several ways in which such injuries could be dealt with by the oral surgeon.

It is quite wrong to suggest that Valadier was in any way a 'poseur' or an 'empiric'. He may have been something of a showman, but he must have had a sincere and convincing manner for the Army Medical Department to accept him as they did. In retrospect he will be seen as one of those figures who make the fabric of history of medicine so fascinating.

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DISCUSSION

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I first met Sir Charles Valadier in 1916. I had been one of those early dental surgeons, serving with a commission as first lieutenant, attached to the Royal Army Medical Corps with the British Expeditionary Force in France. In 1915 I had been posted to No. 22 Casualty Clearing Station in the Vimy Ridge sector of the fighting. When an inspection of the Unit was made by the Director-General of Medical Services, the General asked me if I knew Valadier. When I replied that I did not, my Commanding Officer was directed to give me a week's leave to go to Wimereux and see how well Valadier was treating jaw injury cases.

His technique for treating jaw injuries was not to extract septic teeth and those in the line of fracture and, not having the advantage of penicillin therapy, his cases continued with purulent discharge and sequestration.

When his patients came to England, some went to Queen Mary's Hospital, Sidcup, others to the Croydon Jaw Hospital, where the cases came under the consultative care of Sir Frank

Colyer. Colyer removed the splints, extracted doubtful teeth, treated the sepsis and prided himself that his treatment was sound and Valadier's unsound. A bitter feud between these two 'experts' resulted.

Some years later I again met Valadier, at his dental practice in Paris. He was evidently making excursions into oral surgery, for he had a range of small bottles of Lysol solution, in each of which was a sound tooth. He showed me a premolar saying that he would implant the tooth in someone's jaw where it would form the posterior abutment for a fixed bridge.

As an individual Valadier struck me as a charming, jaunty cowboy; in fact he showed me how to roll a cigarette with one hand, while holding the reins with the other hand.

Some Episodes in the History of African Trypanosomiasis

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Considering how many words have been spoken and written over the last seventy years on the history of our understanding of the trypanosomiasis of man, and, further, that the polemics which have raged around the protagonists in Chagas' disease are hardly less than those around the personalities of African sleeping sickness, I concluded that I could contribute usefully only by strictly confining my field, after some essential background, first to African trypanosomiasis and, second, to only one aspect of that, its *cause célèbre* – as to who should be regarded as contributing most to our understanding the causation of sleeping sickness. Fig 1 shows the African localities mentioned in this history.

Until the demonstration of the trypanosome etiology of sleeping sickness, two separate clinical entities were accepted – trypanosoma fever and sleeping sickness – and the identity of these two conditions was largely unsuspected. Thus their early histories are best followed separately.

Trypanosoma Fever

Until 1880, when Griffith Evans, a veterinary officer working in India, found a trypanosome in the blood of horses and camels affected by a fatal disease locally called surra, trypanosomes were

but little noticed parasites of frogs and rodents. From transmission experiments to horses and dogs, Evans concluded that the organism (*Trypanosoma evansi*) was the cause of the disease and he mentioned a local tradition that it was transmitted by blood-sucking flies. It was, however, not until 1899 that Leonard Rogers demonstrated this (Foster 1965).

About the same time another cattle disease – nagana – which occurred in South Africa, attracted the attention of David Bruce. Bruce, since his demonstration of the cause of Malta fever in 1886, had been Assistant Professor of Pathology at the Army Medical College at the Royal Victoria Military Hospital at Netley, near Southampton. Perhaps by some influence on the part of Sir W Hely Hutchinson – who had been Lieutenant-Governor of Malta when Bruce was working there, and was now the Governor of Zululand and Natal (McKelvey 1973) – Bruce, with his wife as laboratory assistant, arrived to investigate nagana at Ubombo in northern Zululand, in November 1894. Bruce was ignorant at that time of the very existence of trypanosomes and he went through much the same kind of inoculation experimentation as had Evans; he characterized nagana by its clinical features and by its association with 'infusorial' parasites in the blood (Foster 1965). These were subsequently recognized to be trypanosomes.

Bruce was interested also, while he was in Ubombo, to study cases of the notorious 'fly disease', much discussed by the early travellers in this region and particularly by David Livingstone. This disease, practically always fatal to oxen and horses, was ascribed to the bite of the tsetse fly – species of *Glossina*. Bruce found that animals exposed to *Glossina* bite fell ill and then showed in their blood the same organisms as he had found in nagana.

All this Bruce accomplished in less than two months, as he was recalled to military duties before the end of January 1895 (Foster 1965). However, he was back again in Ubombo in the following September, to study the role of *Glossina* in the transmission of these diseases. He concluded that the bite itself was innocuous, but that the fly could transfer an organism and that the organism occurred also in several species of wild animals – antelopes, buffalo and hyena. Bruce postulated only mechanical transmission, i.e., short term infectivity on the part of a fly, which, disturbed in its meal on an infected animal, would infect the animal on which it resumed feeding. It was Koch, at the age of 63, working in Tanganyika after his retirement from the directorship of the Institute of Infectious Diseases at Berlin, who suggested that a cyclical development of the organisms took place in the fly.